

## **WHAT IS CLAIMED:**

- 1 1. An induction liquid pump, comprising:
  - 2 a. a power unit mountable to a first surface of a tank side wall or bottom, said  
3 power unit including a power induction unit to produce a variable magnetic  
4 field; and
  - 5 b. a submersible circulation unit mountable to a second surface of the tank side  
6 wall or bottom, opposite said power unit, said circulation unit including a  
7 circulation induction unit to agitate a surrounding liquid in response to said  
8 variable magnetic field when said power unit and said circulation unit are  
9 mounted.
- 1 2. The induction liquid pump according to claim 1, wherein said power induction unit has  
2 a non-movable stator and said circulation induction unit has a rotor that moves in  
3 response to said variable magnetic field produced by said stator.
- 1 3. The induction liquid pump according to claim 2, wherein said non-movable stator has a  
2 plurality of coils wrapped around a corresponding plurality of metallic cores, and said  
3 rotor is a permanent magnet.
- 1 4. The induction liquid pump according to claim 3, wherein said rotator is a rotatable  
2 permanent magnet having a plurality of poles spaced according to said plurality of  
3 wrapped coils of said stator.
- 1 5. The induction liquid pump according to claim 2, wherein said rotor is a rotatable  
2 permanent magnet having at least two poles.
- 1 6. The induction liquid pump according to claim 5, wherein said non-movable stator has a  
2 plurality of coils wrapped around a corresponding plurality of metallic cores, and said

rotor is a rotatable permanent magnet having a plurality of poles corresponding to each of said plurality of wrapped coils of said stator.

7. The induction liquid pump according to claim 1, wherein said power unit is removably attached to the first surface of the tank side wall or bottom by at least one fixation unit and said circulation unit is removably attached to the second surface of the tank side wall or bottom, opposite said power unit, by at least one fixation unit.

8. The induction liquid pump according to claim 1, further comprising:

a first plurality of fixation units attached to said power unit and attaching said power unit to the first surface of the tank side wall or bottom; and

a second plurality of fixation units attached to said circulation unit and attaching said circulation unit to the second surface of the tank side wall or bottom, opposite said power unit,

wherein said second plurality of fixation units maintains alignment of said circulation unit with respect to said power unit.

9. The induction liquid pump according to claim 8, wherein said first plurality of fixation units has at least one permanent magnet attached to said power unit.

10. The induction liquid pump according to claim 8, wherein said first plurality of fixation units has at least one suction cup attached to said power unit.

11. The induction liquid pump according to claim 8, wherein said first plurality of fixation units has at least one permanent magnet attached to said power unit and one suction cup attached to said power unit, and said second plurality of fixation units has at least one permanent magnet attached to said circulation unit and at least one suction cup attached to said circulation unit.

1 12. The induction liquid pump according to claim 1, wherein said power induction unit has  
2 a non-movable stator to produce said variable magnetic field, said circulation induction  
3 unit further having:

4 a body casing defining an interior partition member;

5 a rotor mounted to said partition member and moving in response to said  
6 variable magnetic field produced by said stator; and

7 an impeller unit movably connected to said rotor by way of a rotation axis member,  
8 wherein said impeller unit agitates the surrounding liquid in response to movement of  
9 said rotor.

1 13. The induction liquid pump according to claim 1, wherein said power induction unit has  
2 a non-movable stator to produce said variable magnetic field, said circulation induction  
3 unit further comprises:

4 a body casing; and

5 a rotor mounted to said body casing and moving in response to said variable  
6 magnetic field, wherein said rotor is attached to a plurality of blades that agitate the  
7 surrounding liquid during movement of said rotor.

1 14. The induction liquid pump according to claim 1, wherein said power induction unit is  
2 electrically connected to a household power supply by a power cord, said power  
3 induction unit having

4 at least one electrically conductive power coil that produces said varying  
5 magnetic field in response to power received from said power cord, and

6                   said circulation induction unit having at least one electrically conductive  
7                   circulation coil that produces power to move an impeller unit in response to said  
8                   varying magnetic field generated by said power coil.

1   15.   The induction liquid pump according to claim 14, said circulation induction unit further  
2           comprising:

3                   an electric motor receiving electrical current from said electrically conductive  
4                   circulation coil and rotating a rotational axis in response; and

5                   an impeller unit rotatably connected to said rotational axis thereby agitating the  
6                   surrounding liquid.

1   16.   The induction liquid pump according to claim 14, said circulation induction unit further  
2           comprising:

3                   an impeller assembly having a permanent magnet attached to a plurality of  
4                   impeller blades; and

5                   at least one pole plate to direct magnetic flux from said circulation coil to said  
6                   permanent magnet of said impeller assembly to induce rotation.

1   17.   An induction liquid pump, comprising:

2                   a power unit comprising at least one electrically conductive power coil disposed  
3                   within a power unit body casing, wherein said power coil produces a varying magnetic  
4                   field in response to received electrical power; and

5                   a circulation unit comprising at least one circulation coil disposed within a  
6                   circulation unit body casing, said circulation coil producing power to rotate an impeller  
7                   assembly in response to said varying magnetic field generated by said power coil.

- 1 18. The induction liquid pump according to claim 17, said circulation unit further  
2 comprising at least one pole plate to transmit power from said circulation coil to  
3 a location about a structural recess defined by said circulation unit body casing, wherein  
4 said impeller assembly is rotatably disposed within said structural recess and rotates in  
5 response to power transmitted by said at least one pole plate.
- 1 19. The induction liquid pump according to claim 17, wherein said power unit is removably  
2 affixed to a first surface of a tank side wall or bottom and said circulation unit is affixed  
3 to a second surface of the tank side wall or bottom, opposite said power unit, wherein  
4 the tank is filled with liquid such that rotation of said impeller assembly produces  
5 agitation of the liquid.
- 1 20. The induction liquid pump according to claim 17, said circulation unit comprising a  
2 body casing defining an intake port connected to an output port by way of an internal  
3 liquid pathway, wherein said impeller assembly draws liquid into said intake port and  
4 out of said output port.
- 1 21. The induction liquid pump according to claim 20, further comprising a directional  
2 rudder connected to said output port, said directional rudder being movable to control  
3 the direction of liquid flow out of said output port.
- 1 22. The induction liquid pump according to claim 20, further comprising a restriction  
2 member connected to said input port, said restriction member being movable to control  
3 liquid flow into said input port.
- 1 23. The induction liquid pump according to claim 20, further comprising a heat sink  
2 conductively connected to said circulation coil and connected to said body casing such  
3 that at least a portion of said heat sink extends into said internal liquid pathway.

1 24. The induction liquid pump according to claim 17, further comprising a flexible washer  
2 covering a front surface of said power unit such that when said power unit is  
3 attached to a flat surface said flexible washer absorbs vibration.

1 25. The induction liquid pump according to claim 17, further comprising a flexible washer  
2 covering a front surface of said circulation unit such that when said circulation unit is  
3 attached to a flat surface said flexible washer absorbs vibration.

1 26. A magnetic scrubber, comprising:

2 a. a power unit having a power unit body casing and a power induction unit,  
3 wherein said power induction unit produces a magnetic field in response to  
4 supplied power; and

5 b. a pad unit having at least one piece of ferrous or any other magnetic material  
6 that moves in response to the magnetic field produced by said power induction  
7 unit.

1 27. The magnetic scrubber according to claim 26, wherein said power unit is held against a  
2 first surface of a tank side wall or bottom by an operator and said movable pad unit is  
3 held against a second surface of the tank side wall or bottom by way of magnetic  
4 attraction of said movable pad unit to said magnetic field produced by said power  
5 induction unit.

1 28. The magnetic scrubber according to claim 26, said power induction unit having an  
2 electric motor that rotates at least one magnet to thereby produce a variable magnetic  
3 field in response to power supplied from a source of electrical power, wherein said pad  
4 unit rotates in response to rotation of said magnet.

- 1 29. The magnetic scrubber according to claim 26,  
2 said power unit having a first plurality of fixation units that produce a  
3 corresponding plurality of localized magnetic fields, and  
4 said pad unit comprising a second plurality of fixation units that are attracted to  
5 the localized magnetic fields produced by said first plurality of fixation units.
- 1 30. The magnetic scrubber according to claim 26, wherein  
2 said power unit is held against a first surface of a tank side wall or bottom by an  
3 operator,  
4 said pad unit is held against a second surface of the tank side wall or bottom by  
5 way of magnetic attraction of said pad unit to said magnetic field produced by said  
6 power induction unit, and  
7 said pad unit having a rotatable pad section that rotates to scrub the second  
8 surface of the tank side wall in response to rotation of said at least one piece of ferrous  
9 or other magnetic material.
- 1 31. The magnetic scrubber according to claim 26, wherein  
2 said power unit is held against a first surface of a tank side wall or bottom by an  
3 operator,  
4 said pad unit is held against a second surface of the tank side wall or bottom by  
5 way of magnetic attraction of said pad unit to the magnetic field produced by said  
6 power induction unit, and

7        said at least one piece of ferrous or other magnetic material is sealed in a water  
8        impermeable material and induces agitation of said pad unit to scrub the second side of  
9        the tank side wall or bottom.

1    32.    The magnetic scrubber according to claim 26, wherein

2                said power induction unit has at least one electromagnet and a control unit which  
3        produce a variable magnetic field in response to the power supplied from a source of  
4        electrical power, and

5                said pad unit moves in response to said variable magnetic field.

1    33.    The magnetic scrubber according to claim 26, wherein

2                said power induction unit having a plurality of electromagnets and a control  
3        unit, said control unit having at least one control surface by which the user may control  
4        the force of magnetic attraction created by said power unit electromagnet in response to  
5        power supplied from a source of electrical power, and

6                said pad unit moves in response to variations in the polarity of said power  
7        induction unit plurality of electromagnets.

1    34.    The magnetic scrubber according to claim 26, wherein

2                said power induction unit includes at least one electromagnet and at least one  
3        control unit,

4                said control unit varies the force of magnetic attraction created by said power  
5        unit at least one electromagnet in response to power supplied from a source of electrical  
6        power, and

7                said pad unit moves in response to variations in the force of magnetic attraction  
8        created by said power induction unit at least one electromagnet.



1 35. The magnetic scrubber according to claim 26, wherein  
2 said power induction unit having at least two electromagnets and at least one  
3 control unit,  
4 said control unit varies the magnetic polarity created by said at least two  
5 electromagnets in response to power supplied from a source of electrical power, and  
6 said at least one piece of ferrous or other magnetic material moves in response  
7 to variations in the magnetic polarity created by said at least two electromagnets.

1 36. The magnetic scrubber according to claim 26, wherein said pad unit is positively  
2 buoyant.

1 37. The magnetic scrubber according to claim 26, wherein said at least one piece of ferrous  
2 or other magnetic material is encapsulated by a water impermeable material.

1 38. The magnetic scrubber according to claim 26, wherein said power induction unit  
2 receives power from a power cord.

1 39. The magnetic scrubber according to claim 26, wherein said power induction unit  
2 receives power from a battery.

1 40. The magnetic scrubber according to claim 26, wherein said power induction unit  
2 receives power from a power cord and transformer.

1 41. The magnetic scrubber according to claim 26, wherein said power induction unit  
2 receives power from a power cord through a ground fault interrupting switch or fuse.